**3GPP TSG-CT WG6 #112-e *C6-220447***

**E-meeting; 23rd – 26th Aug 2022**

|  |
| --- |
| *CR-Form-v12.0* |
| **CHANGE REQUEST** |
|  |
|  | **31.124** | **CR** | **0646** | **rev** | **1** | **Current version:** | **16.8.0** |  |
|  |
| *For* [***H******E******LP***](http://www.3gpp.org/3G_Specs/CRs.htm#_blank)*on using this form: comprehensive instructions can be found at* [*http://www.3gpp.org/Change-Requests*](http://www.3gpp.org/Change-Requests)*.* |
|  |

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| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| ***Proposed change affects:*** | UICC apps | **X** | ME | **X** | Radio Access Network | **x** | Core Network | **x** |

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|  |
| ***Title:***  | Correction to TC 27.22.14.2 |
|  |  |
| ***Source to WG:*** | China telecom, Datang Linktester Technology Co., Ltd., Huawei, HiSilicon |
| ***Source to TSG:*** | CT6 |
|  |  |
| ***Work item code:*** | UEConTest\_R16 |  | ***Date:*** | 2022-07-20 |
|  |  |  |  |  |
| ***Category:*** | **F** |  | ***Release:*** | Rel-16 |
|  | *Use one of the following categories:****F*** *(correction)****A*** *(mirror corresponding to a change in an earlier release)****B*** *(addition of feature),* ***C*** *(functional modification of feature)****D*** *(editorial modification)*Detailed explanations of the above categories canbe found in 3GPP [TR 21.900](http://www.3gpp.org/ftp/Specs/html-info/21900.htm). | *Use one of the following releases:Rel-8 (Release 8)Rel-9 (Release 9)Rel-10 (Release 10)Rel-11 (Release 11)Rel-12 (Release 12)Rel-13 (Release 13)Rel-14 (Release 14)Rel-15 (Release 15)Rel-16 (Release 16)* |
|  |  |
| ***Reason for change:*** | 1) TS 31.111 clause 7.1.1.1A states:*when the ME receives a:**- REGISTRATION ACCEPT message or a DL NAS TRANSPORT message that includes an SOR transparent container information element with list type with value "0"= secure packet; or**(..)**- containing a secure packet constructed as an SMS-Deliver (as specified in 3GPP TS 23.040 [5] with:**(..)**- then the ME shall pass the message transparently to the UICC using the ENVELOPE (SMS-PP DOWNLOAD) command as defined below;**- the ME shall not display or alert the user**- the secure packet is coded as a Command Packet formatted as Short Message Point to Point (as specified in 3GPP TS 31.115  [41]))*2) CR C1-192101(Corrections to the length of the SOR transparent container and UE parameters update transparent container) was agreed in CT1#116 in April 2019. C1-192101cleary states that, the maximum length of a secured packet included in an SOR transparent container is 163 octets according to TS 23.040. The original maximum length of a secured packet was changed from 2026 octets to “n” / “a+z” in TS 24.501 correspondingly.3) In such case, the secured packet in the SOR transparent container information element should include only one SMS-deliver and is no more than 163 octets.4) The test Sequence 2.2 (SMS-PP Data Download in several ENVELOPE commands after Steering of Roaming via DL NAS TRANSPORT long message with REFRESH command [Steering of Roaming]), which includes 3 consecutive SMS-Delivers in the secured packet of SOR transparent container and excessive octets, is somehow contradicted with TS 31.111 clause 7.1.1.1A and is not necessary. |
| ***PL*** |  |
| ***Summary of change:*** | 1. Delete test Sequence 2.2 (SMS-PP Data Download in several ENVELOPE commands after Steering of Roaming via DL NAS TRANSPORT long message with REFRESH command [Steering of Roaming]) in clause 27.22.14.2.4;
2. Fix some errors in Applicability table, add missing item for test Sequence 2.3;
3. Fix some typos;
 |
|  |  |
| ***Consequences if not approved:*** | 1. Inconsistency between the test purpose and test sequences.
2. unaligned with TS 31.111 and TS 24.501.
 |
|  |  |
| ***Clauses affected:*** | 3.4, 27.22.14.2 |
|  |  |
|  | **Y** | **N** |  |  |
| ***Other specs*** |  | **X** |  Other core specifications  | TS/TR ... CR ...  |
| ***affected:*** |  | **X** |  Test specifications | TS/TR ... CR ...  |
| ***(show related CRs)*** |  | **X** |  O&M Specifications | TS/TR ... CR ...  |
|  |  |
| ***Other comments:*** |  |

|  |  |
| --- | --- |
| ***This CR's revision history:*** | Was C6-220447 |

---------------------------- Start of Change -----------------------------

## 3.4 Applicability table

NOTE: It is possible that the applicability of some tests indicated in table B.1 does not match with the value in the Release column, due to late definition of the test sequences. Tests should be performed without considering the Release column, but only based on the conditions indicated for each release.

Table B.1: Applicability of tests

| Item | Description | Re-lease | Test sequence(s) | Rel 99 ME | Rel-4 ME | Rel-5 ME | Rel-6 ME | Rel-7 ME | **Rel-8 ME** | **Rel-9 ME** | **Rel-10 ME** | **Rel-11 ME** | Rel-12 ME | Rel-13 ME | Rel-14 ME | Rel-15 ME | Rel-16 ME | Terminal Profile | Network Dependency | Sup-port | Additional test case execution parameter |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 1 | **PROFILE DOWNLOAD 27.22.1** | R99 | 1 | M | M | M | M | M | M | M | M | M | M | M | M | M | M | E.1/1 | No |  |  |
| 2 | **Contents of the TERMINAL PROFILE command 27.22.2** | R99 |  | M | M | M | M | M | M | M | M | M | M | M | M | M | M | E.1/1 | No |  |  |
| 3 | **Servicing of Proactive UICC Commands 27.22.3** | R99 |  | M | M | M | M | M | M | M | M | M | M | M | M | M | M |  | No |  |  |
| … |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 54 | **27.22.14: SMS-PP Data Download on NAS messages** |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  | 27.22.14.1: SMS-PP Data Dowload after UE parameters update data (Routing Indicator Data) via DL NAS TRANSPORT message "acknowledgement not requested" and "re-registration not requested" | Rel-15 | 1.1 |  |  |  |  |  |  |  |  |  |  |  |  | C231 | C231 | E.1/24 AND E.1/2 | NG-SS only |  |  |

| Item | Description | Re-lease | Test sequence(s) | Rel 99 ME | Rel-4 ME | Rel-5 ME | Rel-6 ME | Rel-7 ME | **Rel-8 ME** | **Rel-9 ME** | **Rel-10 ME** | **Rel-11 ME** | Rel-12 ME | Rel-13 ME | Rel-14 ME | Rel-15 ME | Rel-16 ME | Terminal Profile | Network Dependency | Sup-port | Additional test case execution parameter |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | SMS-PP Data Download after Steering of Roaming via DL NAS TRANSPORT long message with REFRESH command [Steering of Roaming] | Rel-15 | 2.2 |  |  |  |  |  |  |  |  |  |  |  |  | C231 | C231 | E.1/24 AND E.1/2 | NG-SS only |  |  |
|  | 27.22.14.1: SMS-PP Data Dowload after UE parameters update data (Routing Indicator Data) via DL NAS TRANSPORT message "acknowledgement not requested" and "re-registration requested" | Rel-15 | 1.2 |  |  |  |  |  |  |  |  |  |  |  |  | C231 | C231 | E.1/24 AND E.1/2 | NG-SS only |  |  |
|  | 27.22.14.1: SMS-PP Data Dowload after UE parameters update data (Routing Indicator Data) via DL NAS TRANSPORT message "acknowledgement requested" and "re-registration requested" | Rel-15 | 1.3 |  |  |  |  |  |  |  |  |  |  |  |  | C231 | C231 | E.1/24 AND E.1/2 | NG-SS only |  |  |
|  | 27.22.14.1: SMS-PP Data Dowload after UE parameters update data (Routing Indicator Data) via DL NAS TRANSPORT message "acknowledgement requested" and "re-registration not requested" | Rel-15 | 1.4 |  |  |  |  |  |  |  |  |  |  |  |  | C231 | C231 | E.1/24 AND E.1/2 | NG-SS only |  |  |

| Item | Description | Re-lease | Test sequence(s) | Rel 99 ME | Rel-4 ME | Rel-5 ME | Rel-6 ME | Rel-7 ME | **Rel-8 ME** | **Rel-9 ME** | **Rel-10 ME** | **Rel-11 ME** | Rel-12 ME | Rel-13 ME | Rel-14 ME | Rel-15 ME | Rel-16 ME | Terminal Profile | Network Dependency | Sup-port | Additional test case execution parameter |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | 27.22.14.2: SMS-PP Data Download after Steering of Roaming via DL NAS TRANSPORT message with REFRESH command [Steering of Roaming] | Rel-15 | 2.1 |  |  |  |  |  |  |  |  |  |  |  |  | C231 | C231 | E.1/24 AND E.1/2 | NG-SS only |  |  |
|  | void | Rel-16 | 2.2 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  | 27.22.14.2: Steering of Roaming via DL NAS TRANSPORT message with "Acknowledgement requested" and REFRESH command [Steering of Roaming] | Rel-15 | 2.3 |  |  |  |  |  |  |  |  |  |  |  |  | C231 | C231 | E.1/24 AND E.1/2 | NG-SS only |  |  |
|  | 27.22.14.3: SMS-PP Data Download after Steering of Roaming via REGISTRATION ACCEPT message with REFRESH command [Steering of Roaming] | Rel-15 | 3.1 |  |  |  |  |  |  |  |  |  |  |  |  | C231 | C231 | E.1/24 AND E.1/2 | NG-SS only |  |  |
|  | 27.22.14.3: SMS-PP Data Download after Steering of Roaming via REGISTRATION ACCEPT long message with REFRESH command [Steering of Roaming] | Rel-15 | 3.2 |  |  |  |  |  |  |  |  |  |  |  |  | C231 | C231 | E.1/24 AND E.1/2 | NG-SS only |  |  |
| NOTE: For Rel-13 if the UE supports NB-IoT, this test case shall be verified by accessing the NB System Simulator (NB-SS). |

…

---------------------------- Next Change -----------------------------

#### 27.22.14.2 Steering of Roaming via DL NAS TRANSPORT message

##### 27.22.14.2.1 Definition and applicability

See clause 3.2.2.

##### 27.22.14.2.2 Conformance requirement

The ME shall support the Proactive UICC: SMS-PP Data Download facility as defined in the following technical specifications:

- 3GPP TS 31.111 [15] clause 5, clause 7.1, clause 8.1, clause 8.7, clause 8.13 and clause 11.

- 3GPP TS 31.115 [28] clause 4.

- 3GPP TS 23.038 [7] clause 4.

The ME shall support the Procedure for SMS-PP data download via DL NAS TRANSPORT messages as defined in the following technical specifications:

- 3GPP TS 31.111 [15] clause 7.1.1.1a.

The ME shall support the steering of roaming procedure as defined in:

- 3GPP TS 23.122 [29] clause 4.4.6.

##### 27.22.14.2.3 Test purpose

To verify that when the service "data download via SMS Point-to-point" is available in the USIM Service Table and the ME receives a DL NAS TRANSPORT message that includes:

- a SOR transparent container information element with list type with value "0"= secured packet, containing a secured packet constructed as an SMS-Deliver (as specified in TS 23.040 [8]) with:

- protocol identifier = SIM data download;

- data coding scheme = class 2 message;

and the integrity check of the message was successful, then the ME shall:

- pass the message transparently to the UICC using the ENVELOPE (SMS-PP DOWNLOAD) command as defined in 3GPP TS 31.111 [15] clause 7.1.1.2;

- not display or alert the user.

Where the secured packet is coded as a Command Packet formatted as Short Message Point to Point (as specified in TS 31.115 [28]).

For sequence 2.1:

To verify that when the ME receives a USAT REFRESH command qualifier of type "Steering of Roaming", it (as specified in 3GPP TS 23.122 [29], clause 4.4.6):

- deletes formerly forbidden PLMNs provided as allowed in the REFRESH command from the Forbidden PLMN list and from the Forbidden PLMNs for GPRS service list. This includes any information stored in the UICC.

For sequence 2.3:

To verify that when ME receives a USAT REFRESH command qualifier of type "Steering of Roaming", it (as specified in 3GPP TS 23.122 [29], clause 4.4.6):

- replaces the highest priority entries in the "Operator Controlled PLMN Selector with Access Technology" list stored in the ME with the list provided in the REFRESH command;

Note: This requirement is implicitly verified when the ME attempts to obtain service on a higher priority PLMN.

- deletes formerly forbidden PLMNs provided as allowed in the REFRESH command from the Forbidden PLMN list and from the Forbidden PLMNs for GPRS service list. This includes any information stored in the UICC;

- considers new information provided in subsequent attempts to access a higher priority PLMN;

and

- attempts to obtain service on a higher priority PLMN as specified in 3GPP TS 23.122 [29], clause 4.4.3.3 by acting as if timer T that controls periodic attempts has expired.

##### 27.22.14.2.4 Method of Test

27.22.14.2.4.1 Initial conditions

The ME is connected to the USIM Simulator and the NG-SS.

The default NG-RAN UICC with the following exceptions is used:

**EFUST (USIM Service Table)**

 Logically:

|  |  |  |
| --- | --- | --- |
| Service n°42 | Operator controlled PLMN selector with Access Technology | available |
| Service n°113 | URI support for SMS-PP DOWNLOAD as defined in TS 31.111 [15] | available |
| Service n°127 | Control plane-based steering of UE in VPLMN | available |

 Coding:

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Byte:** | **B1** |  | **B6** |  | **B15** | **B16** |
| Binary: | xxxx xxxx | … | xxxx xx1x | …. | xxxx xxx1 | x1xx xxxx |

The NG-RAN UICC parameters are:

 - one OTA Key Set with:

 Key Version: 01

1st key

Key Index (Kic): 01

Key Algorithm: Triple DES

Key value: 000102030405060708090A0B0C0D0E0F

2nd key

Key Index (Kid): 02

Key Algorithm: Triple DES

Key value: 000102030405060708090A0B0C0D0E0F

3rd key

Key Index (Kik): 03

Key Algorithm: Triple DES

Key value: 000102030405060708090A0B0C0D0E0F

For sequences 2.1:

The NG-RAN parameters of the system simulator are:

* Mobile Country Code (MCC) = 001;
* Mobile Network Code (MNC) = 01;
* Tracking Area Code (TAC) = 000001;
* NG-RAN Cell Id = 0001 (36 bits).

For sequence 2.3:

**EFFPLMN**

 Logically:

PLMN1: 254 002 (MCC MNC)

PLMN2: 254 003

PLMN3: 254 004

PLMN4: 234 004

PLMN5: 234 005

PLMN6: 234 006

 Coding:

|  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Coding:** | **B1** | **B2** | **B3** | **B4** | **B5** | **B6** | **B7** | **B8** | **B9** | **B10** | **B11** | **B12** |
| Hex | 52 | 24 | 00 | 52 | 34 | 00 | 52 | 44 | 00 | 32 | 44 | 00 |
|  | **B13** | **B14** | **B15** | **B16** | **B17** | **B18** |  |  |  |  |  |  |
|  | 32 | 54 | 00 | 32 | 64 | 00 |  |  |  |  |  |  |

**EFOPLMNwACT:**

 Logically:

 1st PLMN: 254 001 (MCC MNC)

 1st ACT: NG-RAN

 2nd PLMN: 254 001

 2nd ACT: E-UTRAN

 3rd PLMN: 274 002

 3rd ACT: NG-RAN

 4th PLMN: 274 003

 4th ACT: E-UTRAN

 5th PLMN: 274 004

 5th ACT: E-UTRAN

 6th PLMN: 274 005

 6th ACT: E-UTRAN

 7th PLMN: 274 006

 7th ACT: E-UTRAN

 8th PLMN: 274 007

 8th ACT: UTRAN

 Coding:

|  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Coding:** | **B1** | **B2** | **B3** | **B4** | **B5** | **B6** | **B7** | **B8** | **B9** | **B10** | **B11** | **B12** |
| Hex | 52 | 14 | 00 | 08 | 00 | 52 | 14 | 00 | 40 | 00 | 72 | 24 |
|  | **B13** | **B14** | **B15** | **B16** | **B17** | **B18** | **B19** | **B20** | **B21** | **B22** | **B23** | **B24** |
|  | 00 | 08 | 00 | 72 | 34 | 00 | 40 | 00 | 72 | 44 | 00 | 40 |
|  | **B25** | **B26** | **B27** | **B28** | **B29** | **B30** | **B31** | **B32** | **B33** | **B34** | **B35** | **B36** |
|  | 00 | 72 | 54 | 00 | 40 | 00 | 72 | 64 | 00 | 40 | 00 | 72 |
|  | **B37** | **B38** | **B39** | **B40** |  |  |  |  |  |  |  |  |
|  | 74 | 00 | 80 | 00 |  |  |  |  |  |  |  |  |

**EFHPPLMN (Higher Priority PLMN Search period)**

Logically: set to 6 minutes

Coding:

|  |  |
| --- | --- |
| **Coding:** | **B1** |
| Hex | 01 |

NG-RAN Cell 1:

- Mobile Country Code (MCC) = 254;

- Mobile Network Code (MNC) = 001;

- Tracking Area Code (TAC) = 000001;

- NG-RAN Cell Id = 0001 (36 bits).

NG-RAN Cell 2:

- Mobile Country Code (MCC) = 254;

- Mobile Network Code (MNC) = 003;

- Tracking Area Code (TAC) = 000001;

- NG-RAN Cell Id = 0001 (36 bits).

27.22.14.2.4.2 Procedure

**Expected Sequence 2.1 (SMS-PP Data Download after Steering of Roaming via DL NAS TRANSPORT message with REFRESH command [Steering of Roaming])**

|  |  |  |  |
| --- | --- | --- | --- |
| **Step** | **Direction** | **MESSAGE / Action** | **Comments** |
| 1 | USER → ME | The ME is switched on | ME will perform Profile Download and USIM initialisation |
| 2 | ME → NG-SS | ME successfully REGISTER with NG-RAN cell. |  |
| 3 | NG-SS → ME | NG-SS send to ME DL NAS TRANSPORT message 2.1.1 with acknowledgement not requestedList Type is secured packet | SOR header with:ACK set to "acknowledgement not requested"List Type set to "secured packet" |
| 4 | ME→ UICC | ENVELOPE: SMS-PP DOWNLOAD 2.1.1 | the ME shall pass the message transparently to the UICC using the ENVELOPE (SMS-PP DOWNLOAD) command as specified in 3GPP TS 31.111 [15] clause 7.1.1.1a |
| 5 | UICC → ME  | SW1/SW2 91 XX |  |
| 6 | ME→ UICC | FETCH |  |
| 7 | UICC → ME | PROACTIVE COMMAND: REFRESH 2.1.1 [Steering of Roaming] |  |
| 8 | ME→ UICC | TERMINAL RESPONSE: REFRESH 2.1.1 |  |
| 9 | UICC → ME  | PROACTIVE UICC SESSION ENDED |  |
| 10 | ME | Steering of Roaming procedure | As specified in TS 23.122 [29] clause 4.4.6Note: The SoR procedure cannot be verified completely in this step. A verification of the complete SoR procedure is done in Expected Sequence 2.3 |

DL NAS TRANSPORT message 2.1.1

Logically:

Message details (referring to 3GPP TS 24.501 Figure 9.11.3.51.1)

 Payload container type IE: "0100" (SOR transparent container)

 SOR header:

 SOR data type: "0" (SOR transparent container carries steering of roaming information)

 List indication: "1" (list of preferred PLMN/access technology combinations is provided)

 List type: "0" (The list type is a secured packet.)

 ACK: "0" (acknowledgment not requested)

 Secured packet: as specified in 3GPP TS 31.111 [15] clause 7.1.1.1a – TPDU Command Packet

Coding:

|  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 40 | 00 | 91 | 7F | F6 | 00 | 00 | 00 | 00 | 00 | 00 | 00 |
| 4E | 02 | 70 | 00 | 00 | 49 | 15 | 02 | 00 | 10 | 10 | B0 |
| 01 | 40 | 00 | 00 | 00 | 00 | 00 | 00 | 93 | 8A | B4 | 08 |
| 49 | 71 | 14 | 29 | AA | 31 | 22 | 07 | 00 | A4 | 00 | 04 |
| 02 | 6F | 61 | 22 | 0F | 00 | D6 | 00 | 00 | 0A | 52 | 34 |
| 00 | 80 | 00 | 52 | 44 | 00 | 00 | 80 | 81 | 15 | 81 | 03 |
| 01 | 01 | 07 | 82 | 02 | 81 | 82 | 72 | 0A | 52 | 34 | 00 |
| 80 | 00 | 52 | 44 | 00 | 00 | 80 |

ENVELOPE: SMS-PP DOWNLOAD 2.1.1

Logically:

SMS-PP Download:

 Device identities:

 Source device: Network

 Destination device: UICC

 SMS TPDU: Contents of Secured Packet from DL NAS TRANSPORT message 2.1.1

Coding:

|  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| BER-TLV: | D1 | 61 | 82 | 02 | 83 | 81 | 8B | 5B | 40 | 00 | 91 | 7F |
|  | F6 | 00 | 00 | 00 | 00 | 00 | 00 | 00 | 4E | 02 | 70 | 00 |
|  | 00 | 49 | 15 | 02 | 00 | 10 | 10 | B0 | 01 | 40 | 00 | 00 |
|  | 00 | 00 | 00 | 00 | 93 | 8A | B4 | 08 | 49 | 71 | 14 | 29 |
|  | AA | 31 | 22 | 07 | 00 | A4 | 00 | 04 | 02 | 6F | 61 | 22 |
|  | 0F | 00 | D6 | 00 | 00 | 0A | 52 | 34 | 00 | 80 | 00 | 52 |
|  | 44 | 00 | 00 | 80 | 81 | 15 | 81 | 03 | 01 | 01 | 07 | 82 |
|  | 02 | 81 | 82 | 72 | 0A | 52 | 34 | 00 | 80 | 00 | 52 | 44 |
|  | 00 | 00 | 80 |  |  |  |  |  |  |  |  |  |

PROACTIVE COMMAND: REFRESH 2.1.1

Logically:

Command details:

 Command number: 1

 Command type: REFRESH

 Command qualifier: Steering of Roaming

Device identities:

 Source device: UICC

 Destination device: ME

PLMNwAcT List:

 1stPLMN: 254/003

 1stACT: UTRAN

 2ndPLMN: 254/004

 2ndACT: GERAN

Coding:

|  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| BER-TLV: | D0 | 15 | 81 | 03 | 01 | 01 | 07 | 82 | 02 | 81 | 82 | 72 |
|  | 0A | 52 | 34 | 00 | 80 | 00 | 52 | 44 | 00 | 00 | 80 |

TERMINAL RESPONSE: REFRESH 2.1.1

Logically:

Command details:

 Command number: 1

 Command type: REFRESH

 Command qualifier: Steering of Roaming

Device identities:

 Source device: ME

 Destination device: UICC

Result:

 General Result: Command performed successfully

Coding:

|  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| BER-TLV: | 81 | 03 | 01 | 01 | 07 | 82 | 02 | 82 | 81 | 83 | 01 | 00 |

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**Expected Sequence 2.2 (void)**

**Expected Sequence 2.3: (Steering of Roaming via DL NAS TRANSPORT message with "Acknowledgement requested" and REFRESH command [Steering of Roaming])**

|  |  |  |  |
| --- | --- | --- | --- |
| **Step** | **Direction** | **MESSAGE / Action** | **Comments** |
| 1 | NG-SS | NG-RAN Cell 1 and NG‑RAN Cell 2 transmit BCCH. |  |
| 2 | USER → ME | The ME is switched on | ME will perform Profile Download and USIM initialisation |
| 3 | UICC → ME | PROACTIVE COMMAND PENDING: SET UP EVENT LIST 2.3.1 | If programmable non-removable UICC with a Test Applet is used (as defined in clause 27.0), the TERMINAL RESPONSE cannot be verified by the Test Applet and that the LOCATION STATUS Event has been successfully registered in the device after step 5 is implicitly verified at steps 8 and 18. |
| 4 | ME → UICC | FETCH |
| 5 | UICC → ME | PROACTIVE COMMAND; SET UP EVENT LIST 2.3.1 |
| 6 | ME → UICC | TERMINAL RESPONSE; SET UP EVENT LIST 2.3.1 |
| 7 | ME → NG-SS | The ME successfully registers to NG-RAN cell 1 |  |
| 8 | ME UICC | ENVELOPE: EVENT DOWNLOAD - Location Status 2.3.1 |  |
| 9 | NG-SS → ME | DL NAS TRANSPORT message 2.3.1 | SOR header with:* ACK set to "acknowledgement requested"
* List Type set to "secured packet"
 |
| 10 | ME → UICC | ENVELOPE: SMS-PP DOWNLOAD 2.3.1 | the ME shall pass the message transparently to the UICC using the ENVELOPE (SMS-PP DOWNLOAD) command as specified in TS 31.111 [15] clause 7.1.1.1a |
| 11 | UICC → ME | SW1/SW2 '91 XX' |  |
| 12 | ME → UICC | FETCH |  |
| 13 | UICC → ME | PROACTIVE COMMAND: REFRESH 2.3.1 [Steering of Roaming] | Note: Step 12 can occur at any time during execution of steps 9 to 11 |
| 14 | ME → UICC | Update of EFFPLMN | [Deletion of the entry with PLMN 254/003] |
| 15 | ME → UICC | TERMINAL RESPONSE: REFRESH 2.3.1 |  |
| 16 | UICC → ME  | Proactive UICC session is terminated |  |
| 17 | ME → NG-SS | The ME successfully registers to NG-RAN cell 2 within 6 minutes | [SOR transparent container 2.3.1 with Acknowledgement.]Note: The ME might have registered to the Cell 2 before this step |
| 18 | ME → UICC | ENVELOPE: EVENT DOWNLOAD - Location Status 2.3.2 | PLMN MCC/MNC 254/003, Normal service |

DL NAS TRANSPORT message 2.3.1

Logically:

 Message details (referring to TS 24.501, Figure 9.11.3.53A.1)

 Payload container type IE: "0100" (SOR transparent container)

 SOR header:

 SOR data type: "0" (SOR transparent container carries steering of roaming information)

 List indication: "1" (list of preferred PLMN/access technology combinations is provided)

 List type: "0" (The list type is a secured packet.)

 ACK: "1" (acknowledgment requested)

 Secured packet: as specified in TS 31.111 [15] clause 7.1.1.1a – TPDU Command Packet

 Coding: (Security payload with 254/003 and 254/004 included in the NG-RAN PLMN List)

Coding:

|  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 40 | 00 | 91 | 7F | F6 | 00 | 00 | 00 | 00 | 00 | 00 | 00 |
| 4E | 02 | 70 | 00 | 00 | 49 | 15 | 02 | 00 | 10 | 10 | B0 |
| 01 | 40 | 00 | 00 | 00 | 00 | 00 | 00 | 93 | 8A | B4 | 08 |
| 49 | 71 | 14 | 29 | AA | 31 | 22 | 07 | 00 | A4 | 00 | 04 |
| 02 | 6F | 61 | 22 | 0F | 00 | D6 | 00 | 00 | 0A | 52 | 34 |
| 00 | 80 | 00 | 52 | 44 | 00 | 00 | 80 | 81 | 15 | 81 | 03 |
| 01 | 01 | 07 | 82 | 02 | 81 | 82 | 72 | 0A | 52 | 34 | 00 |
| 80 | 00 | 52 | 44 | 00 | 00 | 80 |

SOR Transparent container in REGISTRATION REQUEST (Acknowledgement) 2.3.1

Logically:

 Payload container details (referring to TS 24.501 Figure 9.11.3.51.4 and 9.11.3.51.6)

 Payload container type IE: "0100" (SOR transparent container)

 SOR header:

 SOR data type: "1" (The SOR transparent container carries acknowledgement of successful

 reception of the steering of roaming information)

ENVELOPE: SMS-PP DOWNLOAD 2.3.1

Logically:

 SMS-PP Download

 Device identities:

 Source device: Network

 Destination device: UICC

 SMS TPDU: Contents of Secured Packet from DL NAS TRANSPORT message 2.3.1

Coding:

|  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| BER-TLV: | D1 | 61 | 82 | 02 | 83 | 81 | 8B | 5B | 40 | 00 | 91 | 7F |
|  | F6 | 00 | 00 | 00 | 00 | 00 | 00 | 00 | 4E | 02 | 70 | 00 |
|  | 00 | 49 | 15 | 02 | 00 | 10 | 10 | B0 | 01 | 40 | 00 | 00 |
|  | 00 | 00 | 00 | 00 | 93 | 8A | B4 | 08 | 49 | 71 | 14 | 29 |
|  | AA | 31 | 22 | 07 | 00 | A4 | 00 | 04 | 02 | 6F | 61 | 22 |
|  | 0F | 00 | D6 | 00 | 00 | 0A | 52 | 34 | 00 | 80 | 00 | 52 |
|  | 44 | 00 | 00 | 80 | 81 | 15 | 81 | 03 | 01 | 01 | 07 | 82 |
|  | 02 | 81 | 82 | 72 | 0A | 52 | 34 | 00 | 80 | 00 | 52 | 44 |
|  | 00 | 00 | 80 |

PROACTIVE COMMAND: SET UP EVENT LIST 2.3.1

Logically:

 Command details:

 Command number: 1

 Command type: SET UP EVENT LIST

 Command qualifier: '00'

 Device identities

 Source device: UICC

 Destination device: ME

 Event List:

 Event 1: Location status

Coding:

|  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| BER-TLV: | D0 | 0C | 81 | 03 | 01 | 05 | 00 | 82 | 02 | 81 | 82 | 99 |
|  | 01 | 03 |

TERMINAL RESPONSE: SET UP EVENT LIST 2.3.1

Logically:

 Command details:

 Command number: 1

 Command type: SET UP EVENT LIST

 Command qualifier: '00'

 Device identities:

 Source device: ME

 Destination device: UICC

 Result:

 General Result: Command performed successfully

Coding:

|  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| BER-TLV: | 81 | 03 | 01 | 05 | 00 | 82 | 02 | 82 | 81 | 83 | 01 | 00 |

PROACTIVE COMMAND: REFRESH 2.3.1

Logically:

 Command details:

 Command number: 1

 Command type: REFRESH

 Command qualifier: Steering of Roaming

 Device identities

 Source device: UICC

 Destination device: ME

 PLMNwAcT List:

 1st PLMN: 254/003

 1st ACT: NG-RAN

 2nd PLMN: 254/004

 2nd ACT: NG-RAN

Coding:

|  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| BER-TLV: | D0 | 15 | 81 | 03 | 01 | 01 | 07 | 82 | 02 | 81 | 82 | 72 |
|  | 0A | 52 | 34 | 00 | 80 | 00 | 52 | 44 | 00 | 00 | 80 |  |

TERMINAL RESPONSE: REFRESH 2.3.1

Logically:

 Command details:

 Command number: 1

 Command type: REFRESH

 Command qualifier: Steering of Roaming

 Device identities:

 Source device: ME

 Destination device: UICC

 Result:

 General Result: Command performed successfully

Coding:

|  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| BER-TLV: | 81 | 03 | 01 | 01 | 07 | 82 | 02 | 82 | 81 | 83 | 01 | 00 |

EVENT DOWNLOAD - LOCATION STATUS 2.3.1

Logically:

 Event list: Location status

 Device identities

 Source device: ME

 Destination device: UICC

 Location status: normal service

 Location Information:

 MCC & MNC: the mobile country and network code (MCC = 254, MNC = 001)

 TAC: the tracking area code (000001)

 NG-SS cell id: the cell identity value (0001 (36 bits))

Coding:

|  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| BER-TLV: | D6 | 17 | 19 | 01 | 03 | 82 | 02 | 82 | 81 | 1B | 01 | 00 |
|  | 13 | 0B | 52 | 14 | 00 | 00 | 00 | 01 | 00 | 00 | 00 | 00 |
|  | 1F |

EVENT DOWNLOAD - LOCATION STATUS 2.3.2

Logically:

 Event list: Location status

 Device identities

 Source device: ME

 Destination device: UICC

 Location status: normal service

 Location Information:

 MCC & MNC: the mobile country and network code (MCC = 254, MNC = 003)

 TAC: the tracking area code (000001)

 NG-SS cell id: the cell identity value (0001 (36 bits))

Coding:

|  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| BER-TLV: | D6 | 17 | 19 | 01 | 03 | 82 | 02 | 82 | 81 | 1B | 01 | 00 |
|  | 13 | 0B | 52 | 34 | 00 | 00 | 00 | 01 | 00 | 00 | 00 | 00 |
|  | 1F |

##### 27.22.14.2.5 Test requirement

The ME shall operate in the manner defined in expected sequence 2.1 to 2.3.

---------------------------- End of Change ------------------------------